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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,281	08/06/2003	Hang Zhao	MCHK/127/US	1382

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HARTFORD, CT 06103

EXAMINER

BUSHEY, CHARLES S

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/635,281

Applicant(s)

ZHAO, HANG

Examiner

Scott Bushey

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 5-7 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 5-7, and 9-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13, as amended by applicant on February 14, 2005 is now dependent upon cancelled claim 2.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 5-7, 9, 10, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rajendren taken together with either Holtzapple et al or Ahlstrom.

Rajendren (Figs. 3 and 6; col. 4, line 66 through col. 5, line 1; col. 6, lines 18-63) substantially discloses applicant's invention as recited by instant claims 1, 5-7, 9, and 13, except for the cowling structure associated with the agitator, and the agitator disc as recited by instant claim 14. Rajendren does clearly teach a housing (32) that is open to atmosphere at its upper end for communicating air to the hollow drive shaft through openings (76), and a sealed bearing

Art Unit: 1724

structure (see Fig. 6) at the lower end of the housing for mounting the drive shaft within the housing near the agitator.

Holtzaple et al (Figs. 8A, 8B, 10A and 10B; paragraphs [0045] and [0046]) and Ahlstrom (Figs. 1 and 3-6; col. 3, lines 35-41, 52-57; col. 5, lines 15, and 58-61) each alternatively disclose rotatable agitators including gas delivery means within the respective rotatable drive shafts, the agitators being associated with surrounding cowling structures at the gas/liquid contact end of the shafts. Applicant should also note that Holtzaple et al (at 150 in Fig. 10A) or Ahlstrom (at 28 in Fig. 3) each disclose the air outlet port arranged below the agitator disc. It would have been obvious to an artisan at the time of the invention, to provide the agitator of Rajendren with a surrounding cowling structure, in view of either of the alternative secondary references, since such would tend to confine the gas bubbles within the area of greatest turbulence and shear, thereby increasing the contact efficiency between the phases.

5. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the reference combination as applied to claims 1, 5-7, 9, 10, 13, and 14 above, and further in view of any one of Beers, Rodoz, or WO 02/21945.

The reference combination as applied to claims 1, 5-7, 9, 10, 13, and 14 above substantially discloses applicant's invention as recited by instant claims 11 and 12, except for the agitator including a coil structure wherein the wires of the coil are connected to the agitator head. The primary reference combination clearly teaches an agitator head having radially extending features to enhance the creation of a vacuum at the agitator head to thereby enhance the contact efficiency at the gas delivery location.

Art Unit: 1724

Each of Beers (Fig. 1), Rodoz (Figs. 1 and 3), or WO 02/21945 (Figs. 1-4) alternatively disclose a agitator coil structure connected at the lowermost end of the rotating drive shaft, such that agitation of the liquid is most vigorous at the point of gas/liquid contact within the overall apparatus. It would have been obvious to an artisan at the time of the invention, to modify the agitator structure as suggested by the primary reference combination, to include wire coil means, in view of any one of the alternative secondary references, since such would improve the contact efficiency by increasing the turbulence and shear at the point of gas delivery to the liquid being treated.

#### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1, 5-7, and 9-14 have been considered but are moot in view of the new grounds of rejection.

#### ***Conclusion***

7. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1724


however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bushey whose telephone number is (571) 272-1153. The examiner can normally be reached on Monday-Thursday 6:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Scott Bushey  
Primary Examiner  
Art Unit 1724

  
3-29-05

csb  
3-29-05